**Domain: Measurement and Data Standard Code: 2.MD.10 Author Name: Susan Warnock**

**Title of Task: \_Class Favorites Surveys\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

Adapted from: Smith, Margaret Schwan, Victoria Bill, and Elizabeth K. Hughes. “Thinking Through a Lesson Protocol: Successfully Implementing High-Level Tasks.”

*Mathematics Teaching in the Middle School 14* (October 2008): 132-138.

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| **PART 1: SELECTING AND SETTING UP A MATHEMATICAL TASK** | |
| What are your mathematical goals for the lesson? (i.e., what do you want  students to know and understand about mathematics as a result of this lesson?) | Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. |
| * What are your expectations for students as they work on and complete this task? * What resources or tools will students have to use in their work? * How will the students work—   independently, in small groups, or in pairs—to explore this task?   * How will students record and report their work? | * Understand what data they need to collect, then collect it   Determine how they will represent their data in two different ways  Represent their data in picture graph and bar graph form  Create questions that can be answered from their two graphs   * Blank and/or graph paper for data collection, representation, and question writing; crayons/markers and pencils; a clipboard for survey * Work in pairs to collect data, to represent it graphically, and to formulate questions. Work independently to record their pair efforts in their math journals. * On large paper to share with whole class   In individual math journals record their work and class answers to their questions |
| How will you introduce students to the activity so as to provide access to *all*  students while maintaining the cognitive demands of the task? | Read Lemonade for Sale.  Discuss favorite videos and how one chooses between two favorites when one knows one gets to watch only one that day. |

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| **PART 2: SUPPORTING STUDENTS’ EXPLORATION OF THE TASK** | |
| As students work independently or in small groups, what questions will you ask to—   help a group get started or make progress on the task?   focus students’ thinking on the  key mathematical ideas in the task?   assess students’ understanding of  key mathematical ideas, problem- solving strategies, or the representations?   advance students’ understanding  of the mathematical ideas? | What information do you already know?  What is your plan?  What were you thinking?  How will you show that on a graph?  Why did you choose this symbol/picture/representation?  Is there another way to represent these data?  What is your next step?  What other question can be answered from either of your graphs?  Do you agree with your partner’s answer? Why or why not?  How do your different graphs show the same information?  What will you do if no one chooses one of your options? |
| How will you ensure that students remain engaged in the task?  What assistance will you give or what questions will you ask a student (or group) who becomes quickly frustrated and requests more direction and guidance in solving the task?  What will you do if a student (or group) finishes the task almost immediately?  How will you extend the task so as to provide additional challenge? | Both students conduct the survey and record on the sharing sheet, then in their individual journals.  What data did you collect?  How can you show that on a graph?  Is there a different way to show that?  What does your partner suggest?  What do you already know about making and using graphs?  Ask them to think of another of each type of question to be answered from their graphs and be prepared with the answers.  Make a prediction about what you think the survey results will show for one of the other class surveys. Record your prediction, then check how accurate you were when that pair shares their results. |

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| **PART 3: SHARING AND DISCUSSING THE TASK** | |
| How will you orchestrate the class discussion so that you accomplish your mathematical goals?   Which solution paths do you want to have shared during the  class discussion? In what order will the solutions be presented? Why?   What specific questions will you ask so that students will—  1. make sense of the  mathematical ideas that you want them to learn?  2. expand on, debate, and question the solutions being shared?  3. make connections among the different strategies that are presented?  4. look for patterns?  5. begin to form generalizations?  What will you see or hear that lets you know that *all* students in the class  understand the mathematical ideas that  you intended for them to learn? | * Look for variety in data representation (e.g. vertical vs. horizontal; varied colors of bars vs. same-colored bars) to have presented to class. * What information do you see presented in another group’s graphs? * How do both graphs from the same survey show the same information? * How are different surveys’ graphs different? Are they the same in any way? * How will you use the graphs to answer the questions the pair asks? * What other questions can you ask and answer from someone else’s graphs?   All students will create accurate graphs in pairs and in their journals.  All students will ask and answer questions based of their own and others’ graphs. |

Today we are going to survey our class on class favorites. We want to find out what our class likes to eat, play, read, color, and more.

With a partner, complete these steps:

1. Get a sticky note (with your subject written on it) and paper from the teacher. You may also get markers, if you choose.
2. Conduct a survey of your class. You must ask at least 10 students. Keep track of how many students you have asked and their choices.
3. Work with your group to create your graph. You could use a bar graph, picture graph or tally graph. Remember to use labels.
4. You will also need to create 3 different questions about your graph. Be sure to include questions that include addition, subtraction, and comparing.

Sample task card topics written on sticky notes:

favorite school lunch: pizza, chicken nuggets, corn dogs, orange chicken

favorite color: green, red, blue, orange

favorite sport: soccer, basketball, baseball

favorite recess activity: kickball, jump rope, equipment, tag

favorite season: spring, summer, autumn, winter

favorite type of book: mystery, animal, fact/science, chapter

favorite art medium: crayons, colored pencils, markers, water colors

favorite ice cream flavor: chocolate, vanilla, strawberry, orange sherbet

favorite holiday: birthday, Halloween, Thanksgiving, Christmas